

FHWA's Future Plans for IHSDM

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IHSDM Technical Support

The Federal Highway Administration (FHWA) has discontinued the Interactive Highway Safety Design Model (IHSDM) software development. However, FHWA will continue to provide free technical support via Geometric Design Laboratory (GDL) staff essentially as long as agencies are still using the IHSDM 2021 (version 17.0.0) software.⁽¹⁾ Based on the current schedule, it is likely that the American Association of State Highway and Transportation Officials (AASHTO) will publish the *Highway Safety Manual* (HSM) second edition (HSM2) in 2026. Even after publication, agencies might need some time to transition from using HSM first edition (HSM1) methods and models to the new or recalibrated HSM2 models (e.g., to calibrate the new HSM2 models and vet the new models for their use).⁽²⁾ During that transition period (which will vary by agency), FHWA will continue to provide IHSDM and HSM support. Since the HSM2 will include models for some facility types or crash types that differ significantly from the HSM1 form (e.g., new pedestrian and bicycle crash models), some parts of the IHSDM Crash Prediction Module (CPM) will become obsolete over time.⁽¹⁾ At some point, the entire IHSDM CPM may become obsolete. Again, FHWA will provide IHSDM technical support to users until then.

FHWA's IHSDM-Related Activities Beyond the 2021 Release

Although FHWA will no longer carry out IHSDM software development, it will continue to provide the following:

- Free IHSDM- and HSM-related **technical support** via GDL staff (contact IHSDM technical support staff via email at IHSDMSupport@dot.gov or the Help Line at 202-493-3407).
- **Training** sessions for IHSDM users via the National Highway Institute (contact nhicustomerservice@dot.gov or 877-558-6873).
- **IHSDM user group** meetings and webinars, with a focus on agency applications and IHSDM case studies.
- Maintenance of the current FHWA **IHSDM website** (<https://highways.dot.gov/turner-fairbank-highway-research-center/software/IHSDM>), which provides a means for users to download the IHSDM 2021 release and to obtain other information of interest.⁽³⁾

FOR MORE INFORMATION VISIT:

<https://highways.dot.gov/turner-fairbank-highway-research-center/software/IHSDM>.⁽³⁾



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IHSMD 2021 (Version 17.0.0): CPM Capabilities

IHSMD version 17.0.0 (i.e., IHSMD 2021)—made available in September 2021—marked the end of FHWA's IHSMD software development effort.⁽¹⁾ Capabilities related to the CPM and the HSM are as follows:⁽²⁾

- CPM includes implementation of HSM1 part C predictive methods for the following:
 - Rural two-lane highways (HSM chapter 10).⁽²⁾
 - Rural multilane highways (HSM chapter 11).⁽²⁾
 - Urban and suburban arterials (five or fewer lanes) (HSM chapter 12).⁽²⁾
 - Freeway segments (HSM chapter 18).⁽²⁾
 - Freeway ramps and interchange components (HSM chapter 19).⁽²⁾
- CPM also includes the following predictive methods developed via the National Cooperative Highway Research Program (NCHRP):
 - Urban and suburban arterials (six or more lanes and one way) (NCHRP 17-58).⁽⁴⁾
 - Roundabouts (NCHRP 17-70).⁽⁵⁾
 - Intersection types not in HSM1 (NCHRP 17-68).⁽⁶⁾
- CPM utilizes user-defined crash modification factors.
- IHSMD Economic Analyses Tool uses CPM evaluation results (crash frequency and severity).
- IHSMD Administration Tool includes a Calibration Utility/Tool to assist agencies in implementing the calibration procedures described in the appendix to HSM part C.⁽²⁾ Through the Administration Tool, users can also modify the crash distribution dataset and model dataset values (e.g., safety performance function coefficients and exponents).

The following methods were not completed by the end of IHSMD software development in September 2021 and so are **not** implemented in IHSMD:

- Pedestrian and bicycle crashes (NCHRP 17-84).⁽⁷⁾
- Improved prediction models for crash types and crash severities (NCHRP 17-62).⁽⁸⁾
- Part-time shoulder use on freeways (NCHRP 17-89).⁽⁹⁾
- High-occupancy vehicle (HOV) and high-occupancy toll (HOT) lanes on freeways (NCHRP 17-89A).⁽¹⁰⁾

Future IHSMD Software Maintenance

Although the IHSMD software development contract has ended, FHWA's GDL will continue to provide certain types of software maintenance, such as the following:

- Track potential bugs in the IHSMD software; catalog and post information regarding known bugs and workarounds (when applicable).
- Maintain a list of desired software enhancements users requested.

FHWA will also consider creating IHSMD configuration files to represent updates to existing HSM models, where possible (i.e., for updated HSM2 part C models that have the same structural form as HSM1 models).⁽²⁾ Through NCHRP 17-72⁽¹¹⁾ and 17-71A⁽¹²⁾, some existing models were recalibrated for HSM2 using single-state calibration. Existing IHSMD configuration files for HSM default models can be updated to reflect the recalibrated models (changing coefficients and exponents). These configuration files may be made available to IHSMD and HSM2 users via the IHSMD website.⁽³⁾ (Users can also do this on their own, but FHWA might provide the updated files to assist users and agencies.)

GDL may also provide updated configuration files for Economic Analysis Model Data Sets on an annual basis.

Future HSM-Related Activities

GDL will continue to provide services related to HSM-related research and activities.

HSM-Related Research

The GDL's significant experience with HSM methods, from both the research and practitioner perspectives, supports a host of potential HSM-related research activities.⁽²⁾ Main focus areas include the following:

- Quality of the HSM predictive method, which includes reviewing all HSM2 draft materials.
- Guidance in applying HSM part C methods.
- Identification of and response to gaps in HSM part C methods.

Other HSM-Related Activities

FHWA's GDL will continue to provide the following:

- Support to agencies as they seek to understand, apply, and implement the new HSM2 methods.
- Assistance to AASHTO in providing technical support to HSM users (including investigating potential errors in HSM1 and HSM2) and to promote data-driven safety analysis through application of HSM methods.⁽²⁾ In some cases, this assistance might include support for using IHSDM to apply HSM part C methods.

FHWA's GDL can provide input on gaps and research needs for the future third edition HSM (e.g., identify gaps in the HSM2) and examine how HSM fits with the Safe System Approach and the forthcoming AASHTO *Green Book* eighth edition.^(13,14)

FHWA will continue to provide technical support and knowledge transfer for a range of IHSDM- and HSM-related activities well into the future.

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